BIOLOGICAL EVALUATION
Mountain Pine Beetle Infestation
Ashley National Forest
1975

BIOLOGICAL EVALUATION
Mountain Pine Beetle Infestation
Ashley National Forest
1975

INTRODUCTION

The mountain pine beetle continues to infest large areas of lodgepole and ponderosa pine types on the Ashley National Forest. This infestation is part of a rather general outbreak that began on the north slope of the Uinta Mountain Range during the late 1950's, reached epidemic proportions during the mid-1960's, and continued to spread throughout most of the lodgepole pine type on both sides of the Range. Attempts were made at control during the early outbreak period, and although these efforts slowed the infestation, they did not offset the inevitable overall losses. In 1975, the outbreak continued unabated throughout most of the Uintas, with heavy tree killing occurring in portions of the Kamas and Evanston Ranger Districts, Wasatch National Forest; and the Vernal and Flaming Gorge Ranger Districts, Ashley National Forest.

GENERAL INFORMATION

Insect: Mountain pine beetle, Dendroctonus ponderosae Hopkins.

Host Trees: Lodgepole pine, Pinus contorta Dougl., and ponderosa pine, Pinus ponderosae Laws.

Type of Damage: Killing of lodgepole and ponderosa pine.

Location: Ashley National Forest, Utah, with emphasis on the Vernal and Flaming Gorge Ranger Districts.

Extent of Outbreak: Throughout most of the lodgepole and ponderosa pine types, with the most active infestations occurring on the Vernal and Flaming Gorge Ranger Districts.

METHODS

A Forestwide aerial detection survey was conducted during August 5-9, followed by an on-the-ground evaluation survey on October 21 and 22. Participants in the latter survey were entomologists Larry Stipe, Dayle Bennett, William Klein, and forester Bruce Padian. The survey was terminated prematurely because of a heavy snowfall during the night of October 22-23, which prevented the accurate detection of 1975 attacked trees. Due to the abnormally dry summer and fall, the trees were low

on moisture and did not exhibit the usually obvious attack symptoms such as resin tubes on the boles of the trees. This phenomenon is referred to as a "blind attack", with the only remaining attack sign being the ring of "sawdust" around the base of the tree. Even under the best of weather conditions, this feature is difficult to detect and requires first-hand inspection of every tree. With snow cover, it is practically impossible.

Evaluation surveys were conducted in several known outbreak areas and the early termination prevented examination of several "suspect" areas where the infestation is light but suspected as being on the increase. Mountain pine beetle trends were determined, for the most part, by systematic attack-ratio surveys conducted in eight separate areas (Table 1). Trees successfully attacked and killed in 1974 and 1975 were detected along predetermined transects within each infestation, separated as to year of attack, counted, and their diameter recorded. Additional observations were made as to stand structure; bark beetle brood stage; abundance and condition; and the presence and relative abundance of secondary insects, such as pine engraver beetles.

RESULTS

Table 1 shows the attack ratios and infestation trends in the eight outbreak areas. These data suggest decreasing trends in all but one area - Little Lake #2. Most of these areas have sustained mountain pine beetle populations for several years, and a decline is inevitable.

Table 1. Attack ratios and diameters of mountain pine beetle-killed lodgepole pine, Ashley National Forest, 1975.

Area	Number of Attacks 1975	1974	Ratio 1/	Average d.b.h. 1975	1974	Brood Condition	Trend
Mud Spr. #1	100	145	0.7:1	10.1	10.1	Fair	Decreasing
Mud Spr. #2	41	62	0.7:1	9.5	9.8	Fair	Decreasing
Little Lake #1	34	64	0.5:1	11.9	12.2	Good	Decreasing
Little Lake #2	104	65	1.6:1	12.0	13.5	Good	Increasing
M. Fk. Sheep Cr.	0	5	-	-	13.0	Fair	-
Long Park	5	150	.03:1	9.0	9.2	Poor	Decreasing
Birch Cr. #1	76	121	0.6:1	9.9	10.0	Good	Decreasing
Birch Cr. #2	107	151	0.7:1	9.9	9.3	Good	Decreasing

1/ Ratio of new (1975) attacks to old (1974).

The Little Lake infestation is more recent and considering the fact that this area contains many large diameter trees, a relatively high level of tree killing should continue for the next two, possibly three years.

DISCUSSION

Although the data indicate a decreasing trend in most of the evaluation areas, it is doubtful that this favorable situation exists Forestwide. Most of these areas have already provided the impetus for mountain pine beetle populations and continued tree killing. Areas with sufficient quantities of susceptible lodgepole pine such as those surrounding Charlies Park, Little Lake, Birch Creek and others, will continue to nurture beetle populations and sustain tree losses for several more years. Mountain pine beetle populations will continue to move into the high-elevation stands on both sides of the Divide, but due to elevation and other biological factors that are not conducive to rapid population increases, this elevational encroachment will be slow and take several years.

Impact studies conducted in other areas (Targhee, Teton) depleted by the mountain pine beetle showed losses upwards of 45 percent of the stand and 60 percent of the merchantable volume. It is unlikely that losses of this magnitude will ever occur on the Ashley National Forest. Factors such as increasing elevation, small diameter trees (thin phloem), slow growth rates, and low form class, all contribute to lower beetle survival and productivity, hence less tree mortality.

A resurgence of mountain pine beetle activity in second growth ponderosa pine is occurring in Uinta Park in and surrounding Uinta Park campground. In 1968, more than four hundred and fifty infested ponderosa pines were felled and burned in an attempt to suppress the infestation. Since then, however, the number of infested trees has increased each year and will continue to increase until the infestation has run its natural course. Widely scattered killing of ponderosa pine is also underway to the south near Cedar View Reservoir and in the lodgepole stands of Dark Canyon as the Uintah and Ouray Reservation. Control was also attempted in the Cedar View area in 1968.

New lodgepole pine infestation centers were also detected between Sawtooth Ridge and Ice Cave Peak on the Roosevelt Ranger District.

RECOMMENDATIONS

Recommendations are essentially the same as those proposed in 1974:

1. Accelerate logging in infested and threatened stands. Because of the extent of infestation, harvesting the infested trees will not reduce beetle numbers significantly, but it will utilize a resource that would otherwise be lost. Stand susceptibility can be minimized by removing only the larger trees, i.e. trees over

8-inches d.b.h. An outstanding example of this preventive and salvage treatment, one that was undertaken with a high degree of professionalism, was the Dry Fork Mountain Sale on the Vernal District.

2. Harvesting activities, whether in recently infested or threatened areas, should be concentrated in the lower elevation stands. These stands generally are the fastest growing and; therefore, more vulnerable to beetle damage. They also provide the impetus for outbreaks.

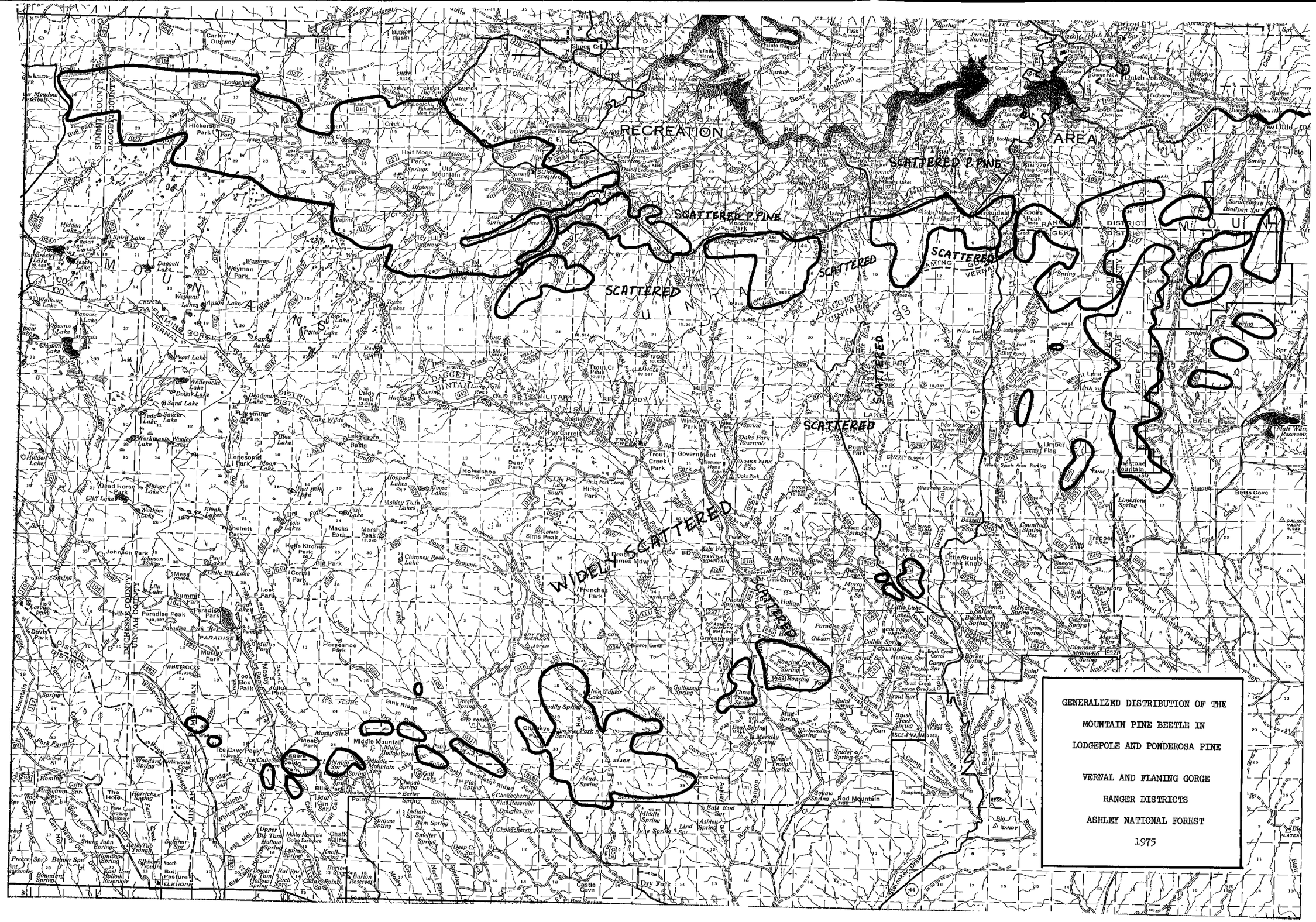
Prepared by:

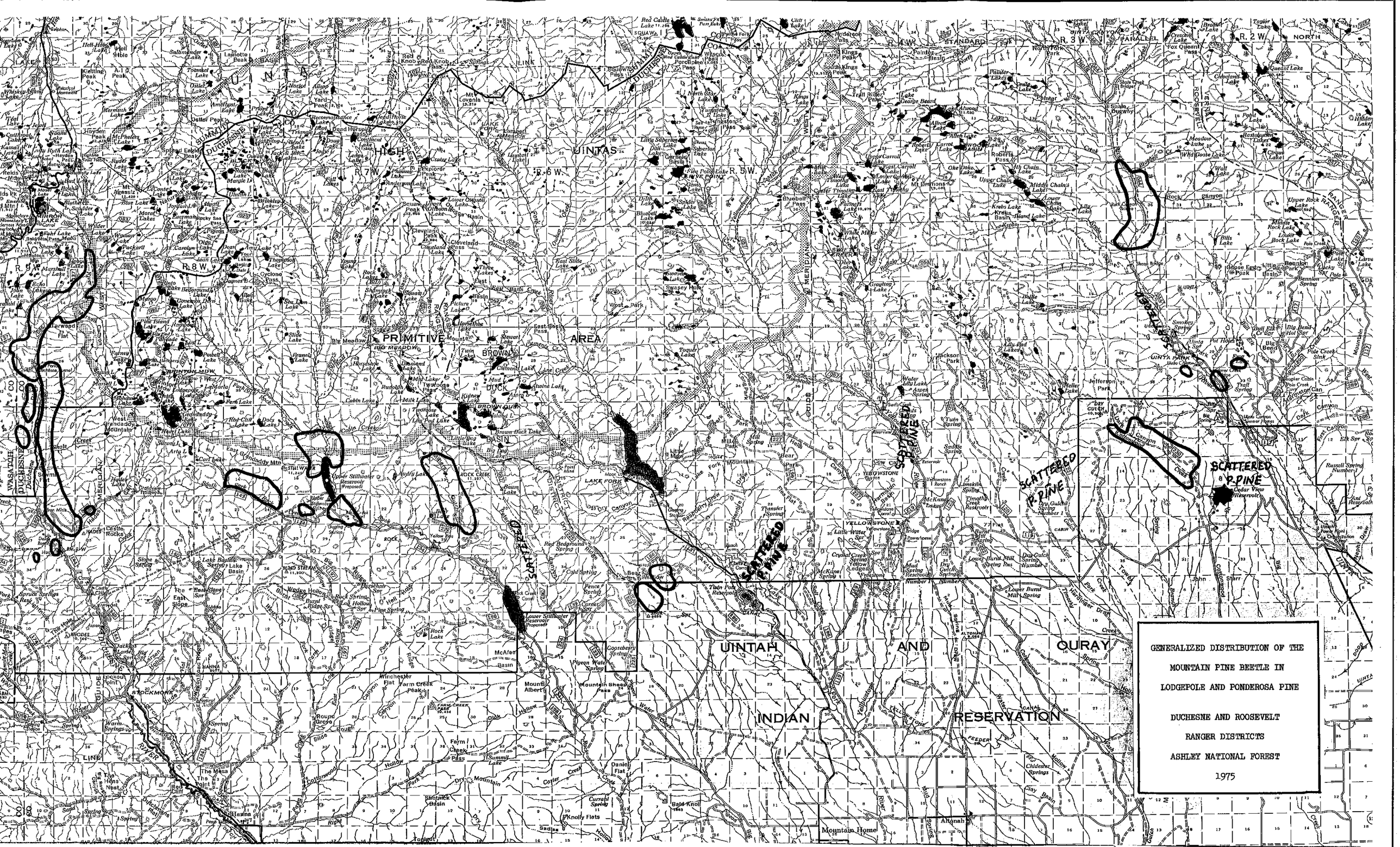
William H. Klein

WILLIAM H. KLEIN
Entomologist

A. M. Rivas

A. M. RIVAS, Director
Insect and Disease Control


SCATTERED
SCATTERED P. PINE
SCATTERED
SCATTERED
SCATTERED
SCATTERED
SCATTERED
WIDELY SCATTERED
SCATTERED
RECREATION
AREA
DISTRICT
MOUNTAIN
DISTRICT
DISTRICT
DISTRICT


PRIMITIVE AREA
UINTAH AND OURAY INDIAN RESERVATION
SCATTERED P.PINE
GENERALIZED DISTRIBUTION OF THE
MOUNTAIN PINE BEETLE IN
LODGEPOLE AND PONDEROSA PINE
DUCHESNE AND ROOSEVELT
RANGER DISTRICTS
ASHLEY NATIONAL FOREST
1975